

ABSTRACT OF THE DISCLOSURE

A method of manufacturing a semiconductor device, includes the steps of forming a disposable gate on a semiconductor substrate in a region where a gate electrode is to be formed, forming a sidewall spacer on a sidewall of the disposable gate, forming a source and drain in the semiconductor substrate using the disposable gate and the sidewall spacer as a mask, forming an interlevel insulating film on the 5 semiconductor substrate so as to cover the disposable gate, planarizing an upper surface of the interlevel insulating film to expose upper surfaces of the disposable gate and the sidewall spacer, removing the disposable gate to form a trench portion having a side 10 surface formed from the sidewall spacer and a bottom surface formed from the semiconductor substrate, depositing a gate insulating film on the semiconductor substrate so as to cover the bottom surface and side 15 surface of the trench portion, forming a gate electrode buried in the trench portion, and removing the sidewall spacer and the gate insulating film on the sidewall of 20 the gate electrode.